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ACUTE URINARY RETENTION DURING PREGNANCY – A NATIONWIDE POPULATION-BASED COHORT STUDY IN TAIWAN

Hypothesis / aims of study

To study the epidemiology and risk factors of acute urinary retention (AUR) during pregnancy.

Study design, materials and methods

We included all cases of pregnancies with AUR reported in Taiwan's Longitudinal Health Insurance Database from January 1, 1998, to December 31, 2011. Cases of AUR onset one day before delivery were excluded. The Cochran-Armitage trend test and logistic regression analysis were used to evaluate the age distribution and types of deliveries of pregnant women. Chi-squared tests and Fisher's exact test were performed to examine the association among all covariates. The odds ratios (OR) and 95% confidence intervals (CI) were estimated.

Results

We identified 308 cases of AUR in 65,490 pregnancies. The risk of AUR during pregnancy was 0.47%. The peak incidence occurred between the 9th and 16th gestational weeks. Patients who experienced preterm delivery exhibited the highest risk for AUR (2.18%). Those with post-term delivery had the second highest risk (0.46%), and patients with a normal delivery exhibited the lowest risk (0.33%). Compared with normal delivery, preterm delivery carried a higher risk of AUR (OR: 6.33, 95% CI: 4.94-8.11). The AUR risk was higher for patients with advanced maternal age (>35 years-old) than it was for those in the younger group (< 20 years-old) (OR: 2.62, 95% CI: 1.18-5.81). Within the normal delivery group, higher incidences of urogenital infection, gestational diabetes mellitus, previous abortion, abnormal pelvis, disproportion and endometriosis were noted in women with AUR than in those without AUR (all p values<0.05).

Interpretation of results

All previous studies of AUR during pregnancy have consisted of case reports or case series studies (1, 2, 3). This is the first large-scale population-based epidemiologic study of AUR in pregnancy. Extrinsic bladder neck or urethral compression due to an impacted and enlarging uterus has been postulated as the pathogenic mechanism of AUR during pregnancy (3). The retroverted gravid uteruses usually rotated spontaneously to an upward position before the 14th gestational week. As the compression was relieved, micturition returned to a normal state. This finding may explain that the timing of the peak incidence of AUR is in the first trimester. However, a retroverted uterus could not fully explain AUR in pregnancy. A retroverted uterus is present in only 11.2% to 15% of pregnancies (2, 3). Factors such as pelvic adhesions, congenital pelvic abnormality, posterior uterine wall leiomyoma, and endometriosis might prevent the uterus from entering the abdominal cavity. In our study, previous abortion, pelvic abnormality, disproportion and endometriosis were associated with AUR in women with a normal delivery.

Acute illness, such as UTIs, inflammation of the pelvis and genital organs, and genital herpes were also associated with AUR in women with a normal delivery.

Interestingly, we identified more women with a previous delivery history in the non-AUR group compared with the AUR group. This finding suggested a protective effect of a previous delivery against AUR. Parity is a significant risk factor for stress urinary incontinence. Stress urinary incontinence involves uncontrollable urine leakage, which is very dissimilar to urinary retention. We reasoned that the gravid mechanical distension effect on the pelvic area, abdominal cavity, and urethra might decrease the risk of AUR.

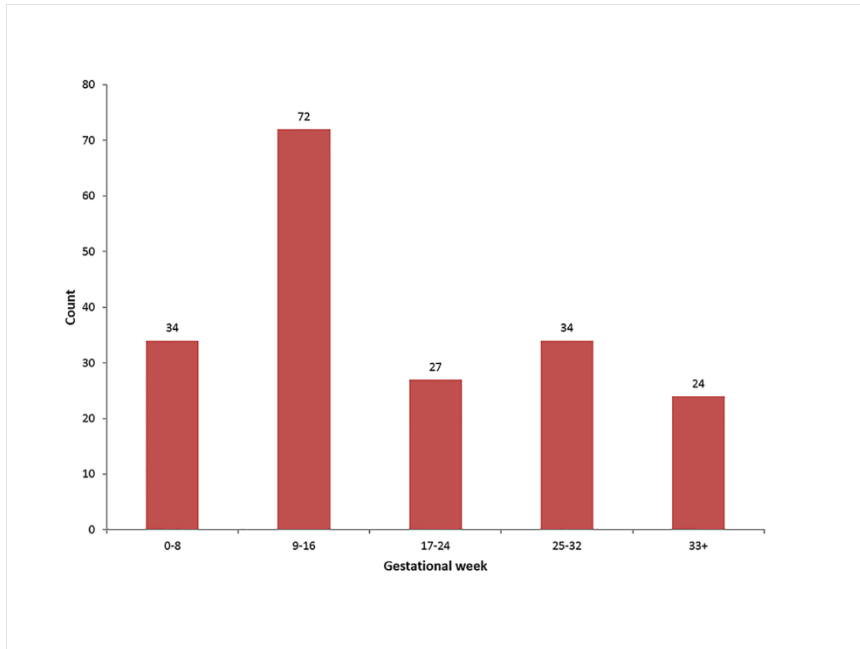
Moreover, women with preterm delivery had more gynecological or fetal illnesses than women with a normal pregnancy; in our study, the risk for AUR was significantly higher in these women.

Concluding message

AUR during pregnancy is an uncommon and multifactorial disease. The risk of AUR during pregnancy is 0.47%. Women with advanced maternal age (> 35 years-old) and those who experience preterm delivery have an increased risk for AUR. The peak incidence of AUR onset in normal pregnancies occurred between the 9th and 16th gestational weeks. To minimize AUR-related complications and identify high risk pregnancies, the early diagnosis, appropriate treatment, careful evaluation, and close follow-up of AUR during pregnancy are necessary.

Figure Legends:

Frequency of the first AUR event in normal pregnancies by eight-week gestational intervals. (n=191)



References

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